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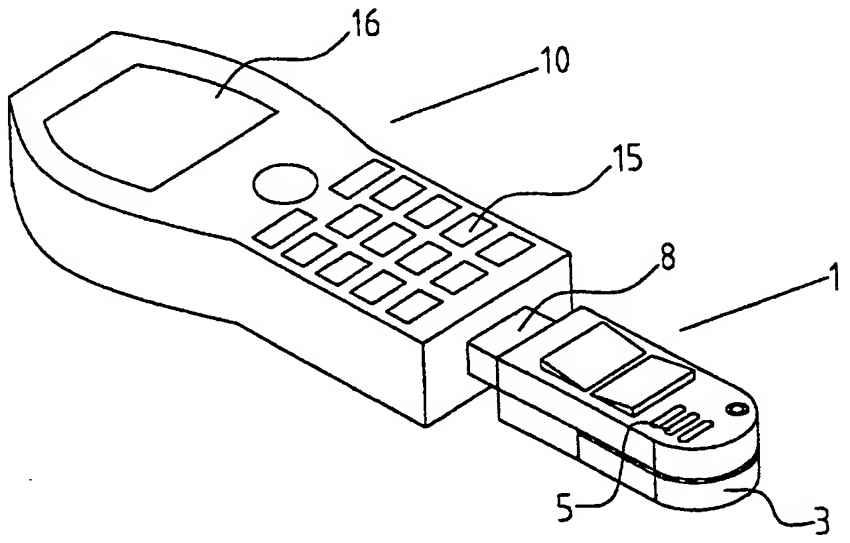
(54) Title: DATA HANDLING



(57) **Abstract:** There is provided a data manipulation device (1) which contains a data processor and an input device (3) for the capture of the data, in the embodiment shown the input device is a scanner, and a communications interface for connection to a transmitter which in this case is a mobile phone (10). The communications interface, the processor and the input device (3) and then the transmitter (10) are all incorporated in the one mobile unit. Various forms of scanners may be used and further, keypads, displays, etc. may also be provided in the data manipulation device. Further, the invention provides a method for handling of data using the data manipulation device which uses the input device (3) to read and capture the data. Then, the data can be stored in memory of the processor and subsequently retrieved. Then, the data can be sent through the mobile phone through the communications interface incorporated in the data manipulation device.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

"Data Handling"

Introduction

The present invention relates to the transmission and processing of data objects and in particular to a data handling and manipulation device, to a method for the handling of data using such a data manipulation device and finally, to a method of shopping.

The term "shopping" in this specification is used in the sense of shopping using a communications device, essentially a not-present trade or transaction of any sort, whether it be the downloading of information between two parties which require the response of the other part or simply the more general shopping as it is known, namely, the ordering of goods and services by a customer from a supplier or merchant. Indeed, more and more shopping is taking place where the customer and supplier are remote from each other whether this be by mail order shopping, shopping on the internet or simply shopping by telephone. A further major problem now is the transmission and processing of data objects between two parties. They may not necessarily be the transmission for the purposes of a trade but simply for the purposes of information.

It is not just simply shopping as we know it now, such as, for example, the shopping for goods or services whether they be tickets for shows, the delivery of goods and so on, but also more and more people wish to be able to carry out many operations in the comfort of their own home, office, car, etc and avail themselves of many services that heretofore were virtually impossible to avail of or if it were possible to avail of such services, it was relatively time consuming and difficult to achieve. Such services that come directly to mind, for example, are gambling and wagering, the obtaining of quotations for goods and services, for the purchase of stocks and shares, transport arrangements such as trains and aeroplane flights, booking of hotels, and so on.

However, heretofore, the ordering of these items has been, generally speaking, a time consuming task and particularly for goods, for example, groceries the actual

preparation of a shopping list or shopping basket was, except for those with considerable typing or computer skills, so difficult as to deter them from attempting to shop on-line, particularly to attempt to shop on line through the Internet.

What is required is a way for people to carry out these shopping and other tasks simply and easily and the present invention is directed towards this.

Thus, the term "shopping" is used in this specification in the broadest sense, namely, for the obtaining of, distribution of, brokerage of, payment of, sale of, and service of goods and services as well as including the various transactions involved in and carrying out this "shopping" where they are defined as described above.

Statements of Invention

According to the invention, there is provided a data manipulation device comprising:-

a data processor;

an input device for the capture of data; and

a communications interface for connection to a transmitter for the transmission of the data characterised in that the communications interface, the processor, the input device and the transmitter are all incorporated in the one mobile unit.

In one embodiment, the data manipulation device is an attachment for a mobile phone forming the transmitter. The data manipulation device is a plug-in unit and the communications interface is directly connected to the transmitter. The data manipulation device may include a visual display means and/or a keypad.

The input device may comprise a scanning device, which scanning device may be a laser scanner or a radio frequency input device (RFID) or alternatively, the input device can be a barcode reader. Preferably, there are means for converting the barcode into

alphanumeric characters or vice versa. Preferably, when there is a barcode reader, the processor stores all data in barcode format.

In accordance with one embodiment of the invention, the data manipulation device comprises means for storing the data in discrete locations in a memory in the processor for subsequent retrieval.

In one embodiment of the invention, the transmitter includes a keypad and the processor is programmed to receive, through the communications interface, alphanumeric characters for subsequent use by the processor. In this latter embodiment, the processor may be programmed to create databases by use of the keypad. The data manipulation device may also incorporate a magnetic strip reader. It also may include a separate communications device for the interchange of data with a dedicated receiver. In this latter embodiment, the data manipulation device may comprise means for storing monetary credits and means for using the monetary credits in a transaction.

Further, the invention provides a method for the handling of data using a data manipulation device, comprising:-

using the input device to read and capture the data;

storing the data in the memory of the processor;

subsequently retrieving the data;

sending the data to the transmitter through the communication interface; and

transmitting the data to a remote communications device.

Additionally, the invention provides a method of shopping using a data manipulation device, comprising:-

preparing a shopping list database;

scanning the barcode of an item for possible subsequent purchase;

storing the barcode in the shopping list database as item data;

subsequently retrieving the shopping list;

preparing a shopping basket from the shopping list; and

transmitting the shopping basket to a merchant by using the communications device.

In this latter method, there is stored a merchant identifier with the item. Further, in accordance with this method, the steps may be performed of:-

causing a search to be carried out in the shopping list database for a particular item;

retrieving each item satisfying the search criteria;

choosing the desired item;

downloading the item data onto a shopping list; and

transmitting the shopping list to a merchant.

It will also be appreciated that when using the data manipulation device having a magnetic strip reader, the magnetic strip reader may be used to input credit card details for subsequent payment.

Further, the invention provides a computer program comprising program instructions which when loaded into the data manipulation device constitute the means of the data manipulation device as described above. Further, there is provided a computer program comprising program instructions for carrying out the method as described

above. The computer program may be embodied in a record medium, a computer memory, a read only memory or carried on an electrical carrier signal.

Detailed Description of the Invention

The invention will be more clearly understood from the following description of some embodiments thereof, together with some methods of carrying out the invention and in particular to a method of shopping in accordance with the invention in which:-

Fig. 1 is a perspective view of a data manipulation device according to the invention shown about to be plugged into a mobile phone,

Fig. 2 is a schematic view of the data manipulation device of Fig. 1,

Figs. 3 to 6 inclusive show varying constructions of data manipulation device according to the invention,

Fig. 7 shows another construction of data manipulation device used with a vending machine, and

Figs. 8 to 13 show flowcharts of various operations of the data manipulation device.

Referring to the drawings, and initially to Figs. 1 and 2 thereof, there is illustrated a data manipulation device according to the invention, indicated generally by the reference numeral 1 about to be plugged into a transmitter, in this case, a mobile phone, indicated generally by the reference numeral 10. The data manipulation device 1 comprises a data processor 2 including a memory, an input device for the capture of data, in this case an image scanner 3, and a communications device 4 for connection to the mobile phone 10. There is also provided a keypad 5, in this case, with minimal keys. The data manipulation device 1 includes a plug-in connector 8 for mounting on the mobile phone 10. The mobile phone 10 has a conventional display device 16 and a keypad 15. All of this is conventional. In this

particular embodiment, the communications device is a mobile phone and may be one operating under the WAP protocol, PDA protocol or Bluetooth™, a wireless based system or protocol or indeed a conventional phone, whether mobile or fixed. The hardware involved is all well known and does not require any further description.

While the use of various image readers or scanners and how they are operated will be described in more detail with reference to the various flowcharts contained herein, taking the simplest example, namely, the shopping for goods such as would be provided in a supermarket in this case, the image scanner 3 is a barcode scanner which is used to scan household product containers to store the items for future reference. Thus, for example, a housewife could scan the existing cartons of goods or tins of goods in her own kitchen or from an advertisement and store all these on a database for future ordering. The data, when scanned, can be held in memory either on the data manipulation device for later transmission or in some form of computer database in the consumer's house or indeed in a computer database at a retailers premises.

When the user wishes to order a particular item, the database is consulted and the relevant items are downloaded into a shopping list, which shopping list can then be transmitted down the communications device to the supplier. It will be appreciated that once the shopping list has been prepared, that the shopping list may be transmitted in any way and at any time to the supplier.

Further, it will be appreciated that a supermarket, for example, could provide a total shopping list of all the items on their premises at one particular time, which shopping list could include a barcode to allow people to order the items.

Referring to Fig. 3, there is illustrated an alternative construction of data manipulation device, again indicated generally by the reference numeral 1, in this case, incorporating a display 6. Fig. 4 illustrates another construction of data manipulation device, in this case incorporating both a display 6 and a full keypad 5. While Fig. 5 shows a further data manipulation device, again indicated generally by the reference numeral 1, in this case having additionally, a magnetic

strip reader 7.

Obviously, the incorporation of these additional features will change the layout as shown in Fig. 2, however, there is no need to further describe them. Fig. 6 shows a data manipulation device 1 incorporated fully within a mobile phone 10 having a magnetic strip reader 17. In this embodiment, the processor 2 is so programmed to receive through the communications interface 4, data, and to use the keypad 15 and the magnetic strip reader 17 in the mobile phone 10 for manipulation of the data in the data manipulation device 1.

Referring to Fig. 7, there is illustrated again a mobile phone 10, with a data manipulation device 1 about to be incorporated. In this embodiment, the data manipulation device 1 includes a further communications device 20 for communication with a dedicated receiver 21, in this case, mounted in a vending machine 22.

The use of the various embodiments of Figs. 3 to 6 will be substantially the same as that of Figs. 1 and 2. However, with the embodiment of Fig. 7, it is envisaged that, for example, a person carrying the data manipulation device plugged into a mobile phone could use the data manipulation device to pay for small items in a vending machine, such as the vending machine 22 illustrated in Fig. 7, when the vending machine is programmed to accept payment from the mobile phone. Simple communications protocol and means to download payment could be relatively easily provided. This invention provides means for storing monetary credits and means for using the monetary credits in the transaction. For example, with a mobile phone, one of the easiest ways of doing this would be simply to debit the mobile phone account. This could be extremely useful for the purchase of relatively inexpensive items such as those out of a vending machine.

Fig. 8 shows the simplest way of either scanning an item itself or, for example, scanning a catalogue. Figs. 9 and 10 show the operation in more detail.

For example, the various error messages could be as follows. It will be appreciated that many other different options could be used.

Error message 1 options

- Power supply too low
- Item unreadable
- Code not standard
- Reader fault – contact dealer
- Please scan item again

Error message 2 options

- Power supply too low
- Faulty connection
- Please contact dealer

Error message 3 options

- Store's modem busy
- Redial?
- End call?
- Line fault, call service provider

Error message 4 options

- Data incompatible with store
- Line busy
- Line fault

Error message options

- 'Socket' error message
- Line fault
- Line busy, select another store

Referring to Figs. 11 to 13, the operation might be somewhat as shown. Firstly, there would be a scanning action with X store representing, for example, a suitable storage in memory such as a shopping list database.

Where a magnetic strip reader is provided, it can be used for payment or other tasks such as identification and authentication with or without the inputting of a PIN number.

A WAP-base system may be used with a suitable scanner, whether it be an internal scanner or digital reader.

In relation to the technical requirements for achieving the present invention, it will be appreciated that some current non-WAP communication devices have an infrared light capacity which can be used purely as a scanning storage and transmission device. This can be done with any communication device by retrofitting an infrared reader or relevant image reader attached to the external communication ports of the device with some software, hardware and or communication interfaces for operation of the numeric keypad. For example, using the # key, one could set up the various operations such as, and this is purely for example, #1 on the keypad denotes scan, #2 on the keypad denotes select file to store to, #3 on the keypad would store to file, #9 on the keypad denotes send, #10 on the keypad confirms send and so on. Typically, this would be achieved by use of a menu system or memory device or menu based system. Indeed the communication device's processor may be used for example the SIM card or alternatively a hot key based system may be employed. The options are limitless. It will be appreciated that such a service can be readily easily included in the communication device's processor, for example the SIM card or alternatively with the use of the SIM card, processor, or memory device, the display could give the various options which could be selected by simply displaying and pressing the "yes" button.

It will be appreciated that as so many items have barcodes and readable images already affixed thereto, that there is a large amount of barcode and image reading software available. It will also be appreciated with a communication device for

example a mobile phone that it is a simple matter to transmit the information through a stored telephone number to a desired merchant or supplier. Many forms of payment may be used, whether it be through the Telephone Company by way of charging on the telephone bill, by way of credit card or any other forms. It is also envisaged, as mentioned above, that a user can be supplied with a catalogue. The catalogue could have the necessary barcodes or readable images.

It is also envisaged that software may be provided to read barcodes and convert to alphanumeric characters for display and storage or vice versa.

It will be appreciated that the magnetic strip reader may be used to download credit card information during a trade or indeed for other information.

It is envisaged that a mobile phone with an internal infrared (IR) scanner to IrDA standards could be necessary and that this mobile phone may indeed have twin infrared lights, one adapted for active scanning and the other for data communications.

As mentioned above, the image reader can be optical including all forms of electronic optics, audio, mechanical or electronic utilising all known reading or scanning technologies. Including but not limited to: -

1. Visible light scanners xxxnM –yyynM
2. Infrared scanners xxxnM-yyynM
3. Ultra Violet scanners xxxnM-yyynM
4. LED scanners
5. CCD scanners
6. Microwave scanners
7. X-ray scanners
8. Gamma ray scanners
9. Ultrasonic scanners
10. Laser scanners
11. Audio scanners

12. 3D scanners.
13. Embossed image scanners
14. Colour coded bar code buttons
15. Radio frequency identification

It will be appreciated that the communications device, as explained above, can be anything from a mobile phone, fixed line telephone, satellite telephone, pager, PC, indeed all computers, television set, radio set and a PDA (personal digital appliance).

It will also be appreciated that data can be transmitted in many formats including but not limited to such as the digital format, analogue format, microwave, ultrasonic, high definition TV, satellite, infrared, bluetooth, electricity cable, cable TV, ISDN, fibre optic cable. All or a combination of systems could be used. For example, a standard mobile phone was modified by the retrofit or connecting of a infrared reader attesting a telecommunications port of the device and custom software, hardware, and or communication interfaces with the alpha or numeric keypad. The communication device may be any form of transmitter or receiver

Further, it will be appreciated that the communications device may be retrofitted or upgraded with additional memory or indeed have this memory fitted either within or external to the device to enable the device to carry out the functions described with either additionally or separate to or any combination thereof of the normal functions of the communications device.

It will also be appreciated that a receipt can be provided, in either electronic form or a hard copy may be printed, indeed the electronic receipt may be stored in a storage means and retrieved at a later stage.

While the embodiment described above has been related almost entirely to shopping, it will be appreciated that this is just simply a specific description of a particular form of data capture, but that many other tasks could be carried out, for example, during maintenance operations, machine identification data may be read and stored for future downloading. Similarly, during other control operations, a

hand-held device can be used to scan, for example, alphanumeric characters and these alphanumeric characters can be stored. The invention is not limited simply to the use of barcodes. Indeed, in many instances, for the consumer, it would be necessary for the consumer to identify a supplier of a particular item, for example, a supplier of an item listed in an advertisement and therefore it will be necessary to store this information and thus, it is envisaged that the processor may have some means to convert alphanumeric characters into barcode and to store all the data as barcode readable data. Similarly, it is envisaged that at any stage, the processor may be used to convert any stored barcode into alphanumeric characters to display the item data in alphanumeric form. In many instances, however, there are considerable advantages in using barcode format. It is also envisaged that the processor may include means for preparing various databases such as a shopping list database or other databases.

In this specification, the terms "comprise", "comprises" and "comprising" are used interchangeably with the terms "include", "includes" and "including", and are to be afforded the widest possible interpretation and vice versa.

The invention is not limited to the embodiments hereinbefore described which may be varied in both construction and detail within the scope of the claims.

CLAIMS

1. A data manipulation device (1) comprising:-

a data processor (2);

an input device (3) for the capture of data; and

a communications interface (4) for connection to a transmitter (10) for the transmission of the data characterised in that the communications interface (4), the processor (2), the input device (3) and the transmitter are all incorporated in the one mobile unit.

2. A data manipulation device (1) as claimed in claim 1, in which the data manipulation device (1) is an attachment for a mobile phone forming the transmitter (10).

3. A data manipulation device (1) as claimed in claim 1 or 2, in which the data manipulation device (1) is a plug-in unit and the communications interface (4) is directly connected to the transmitter (10).

4. A data manipulation device (1) as claimed in any preceding claim, in which the data manipulation device (1) includes a visual display means (6).

5. A data manipulation device (1) as claimed in any preceding claim, in which the data manipulation device (1) incorporates a keypad (5).

6. A data manipulation device (1) as claimed in any preceding claim, in which the input device (3) comprises a scanning device.

7. A data manipulation device (1) as claimed in claim 6, in which the scanning device comprises a laser scanner.

8. A data manipulation device (1) as claimed in claim 6, in which the scanning

device comprises a radio frequency input device (RFID).

9. A data manipulation device (1) as claimed in any preceding claim, in which the input device (3) is a barcode reader.

10. A data manipulation device (1) as claimed in claim 9, in which the processor (2) includes means for converting the barcode into alphanumeric characters.

11. A data manipulation device (1) as claimed in claim 9 or 10, in which the processor (2) includes means for converting alphanumeric characters into barcode format.

12. A data manipulation device (1) as claimed in any of claims 9 to 11, in which the processor (2) stores all data in barcode format.

13. A data manipulation device (1) as claimed in any preceding claim, comprising means for storing the data in discrete locations in a memory in the processor (2) for subsequent retrieval.

14. A data manipulation device (1) as claimed in any preceding claim, in which the transmitter includes a keypad (5) and the processor (2) is programmed to receive, through the communications interface, alphanumeric characters for subsequent use by the processor (2).

15. A data manipulation device (1) as claimed in claim 14, in which the processor (2) is programmed to create databases by use of the keypad (5).

16. A data manipulation device (1) as claimed in any preceding claim, comprising a magnetic strip reader.

17. A data manipulation device (1) as claimed in any preceding claim, in which the data manipulation device (1) includes a separate communications device (20) for the interchange of data with a dedicated receiver (21).

18. A data manipulation device (1) as claimed in claim 17, in which the data manipulation device (1) comprises means for storing monetary credits and means for using the monetary credits in a transaction.

19. A method for the handling of data using a data manipulation device (1) as claimed in any preceding claim, comprising:-

using the input device (3) to read and capture the data;

storing the data in the memory of the processor (2);

subsequently retrieving the data;

sending the data to the transmitter (10) through the communication interface (4); and

transmitting the data to a remote communications device.

20. A method of shopping using a data manipulation device as claimed in any of claims 1 to 18, comprising:-

preparing a shopping list database;

scanning the barcode of an item for possible subsequent purchase;

storing the barcode in the shopping list database as item data;

subsequently retrieving the shopping list;

preparing a shopping basket from the shopping list; and

transmitting the shopping basket to a merchant by using the communications device.

21. A method as claimed in claim 20, comprising storing a merchant identifier with the item.

22. A method as claimed in claim 21, comprising:-

causing a search to be carried out in the shopping list database for a particular item;

retrieving each item satisfying the search criteria;

choosing the desired item;

downloading the item data onto a shopping list; and

transmitting the shopping list to a merchant.

23. A method as claimed in any of claims 20 to 22 using the data manipulation device of claim 16, in which, on agreeing a purchase with a merchant, the magnetic strip reader is used to input credit card details for subsequent payment.

24. A computer program comprising program instructions which, when loaded into the data manipulation device, constitute the means as claimed in any of claims 1 to 18.

25. A computer program comprising program instructions for carrying out the method as claimed in any claims 19 to 23.

26. A computer program as claimed in claim 24 or 25 embodied in a record medium.

27. A computer program as claimed in claim 24 or 25 embodied in a computer memory.

28. A computer program as claimed in claim 24 or 25, embodied in a read only memory.

29. A computer program as claimed in claim 24 or 25, carried on an electrical carrier signal.

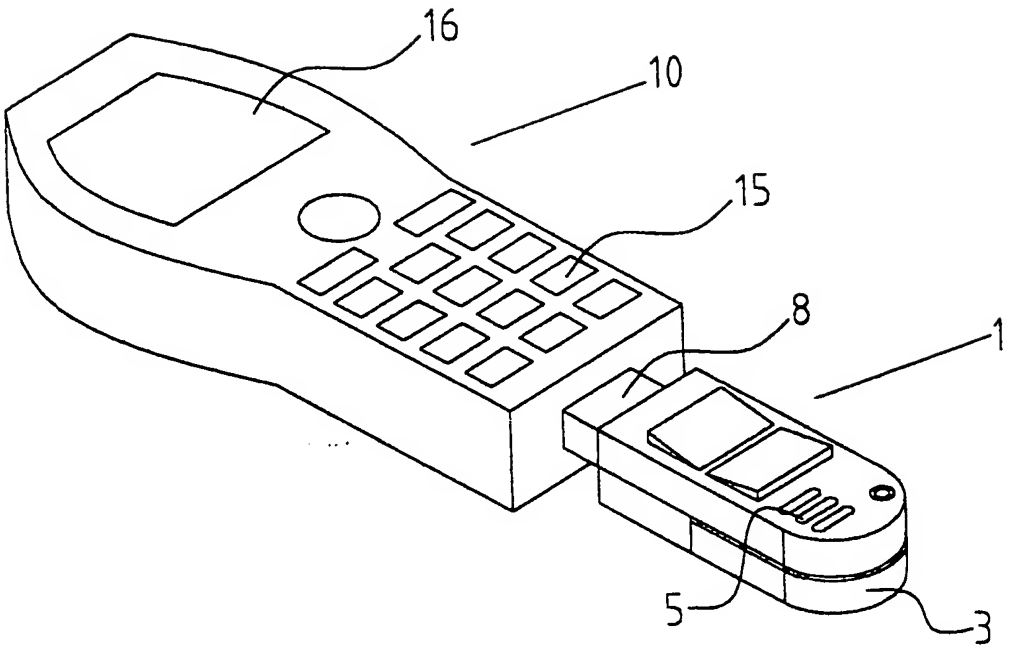


Fig. 1

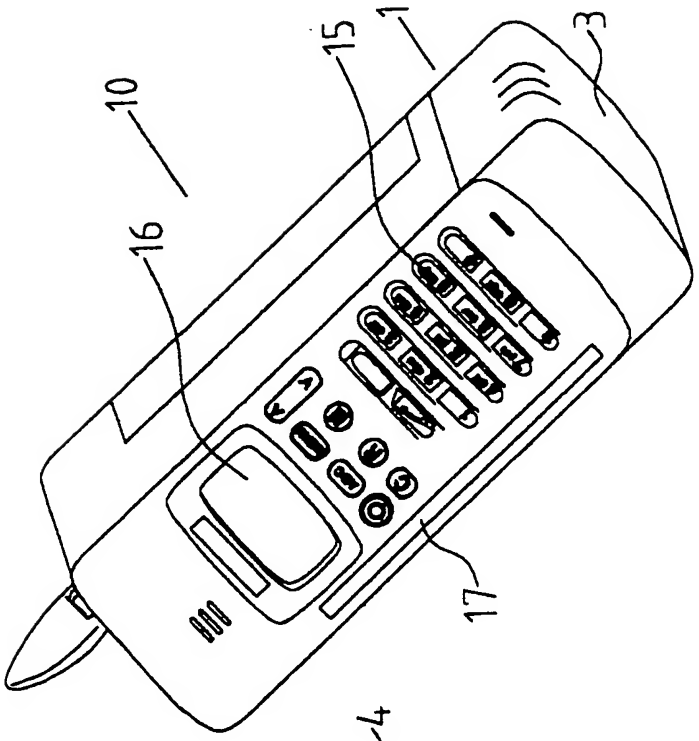


Fig. 6

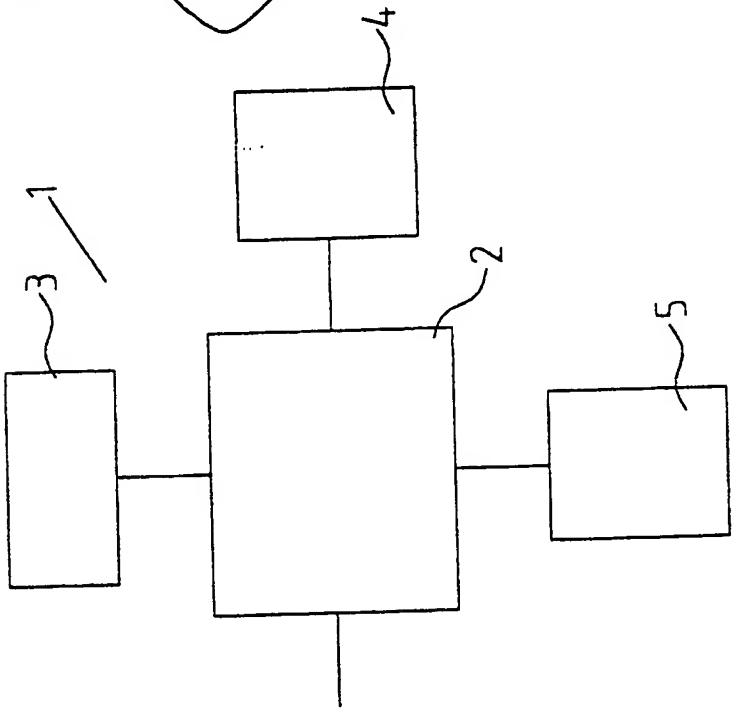


Fig. 2

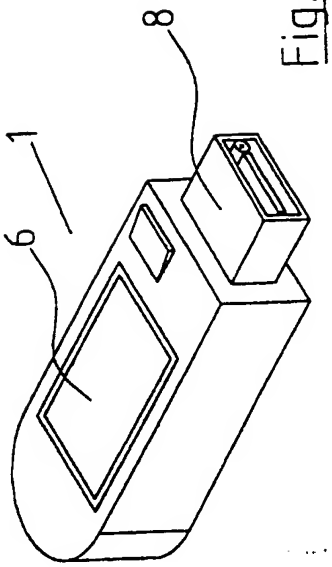


Fig. 3

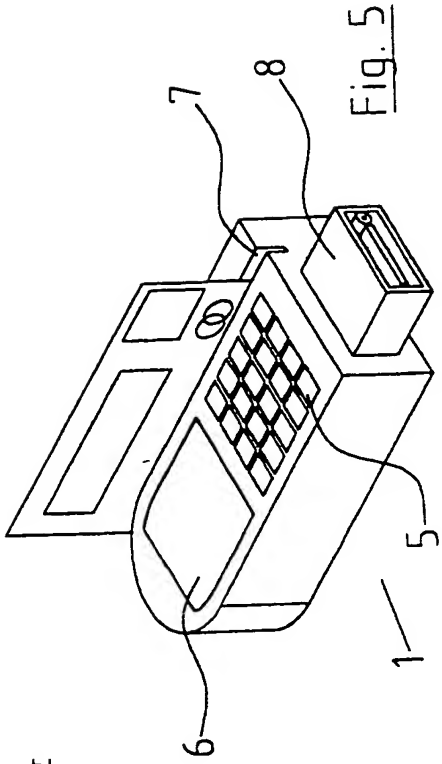


Fig. 5

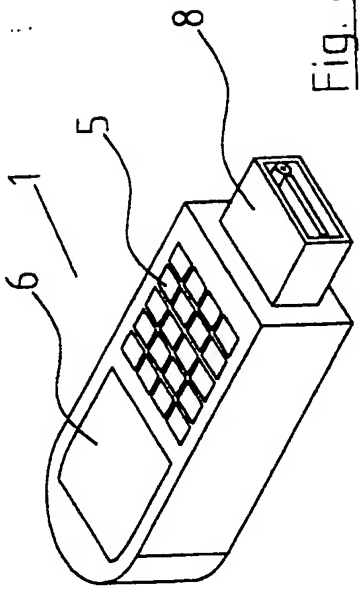


Fig. 4

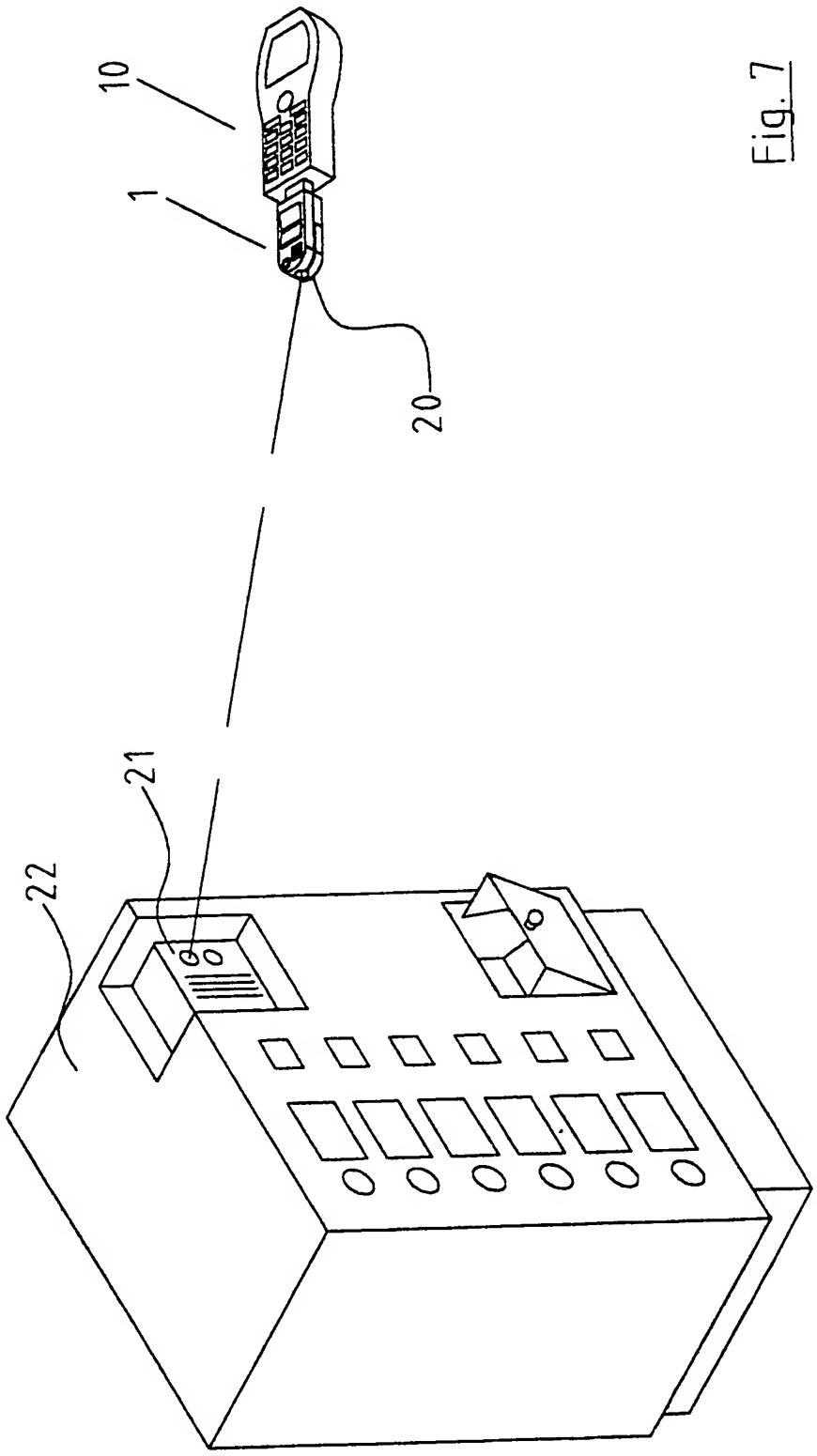
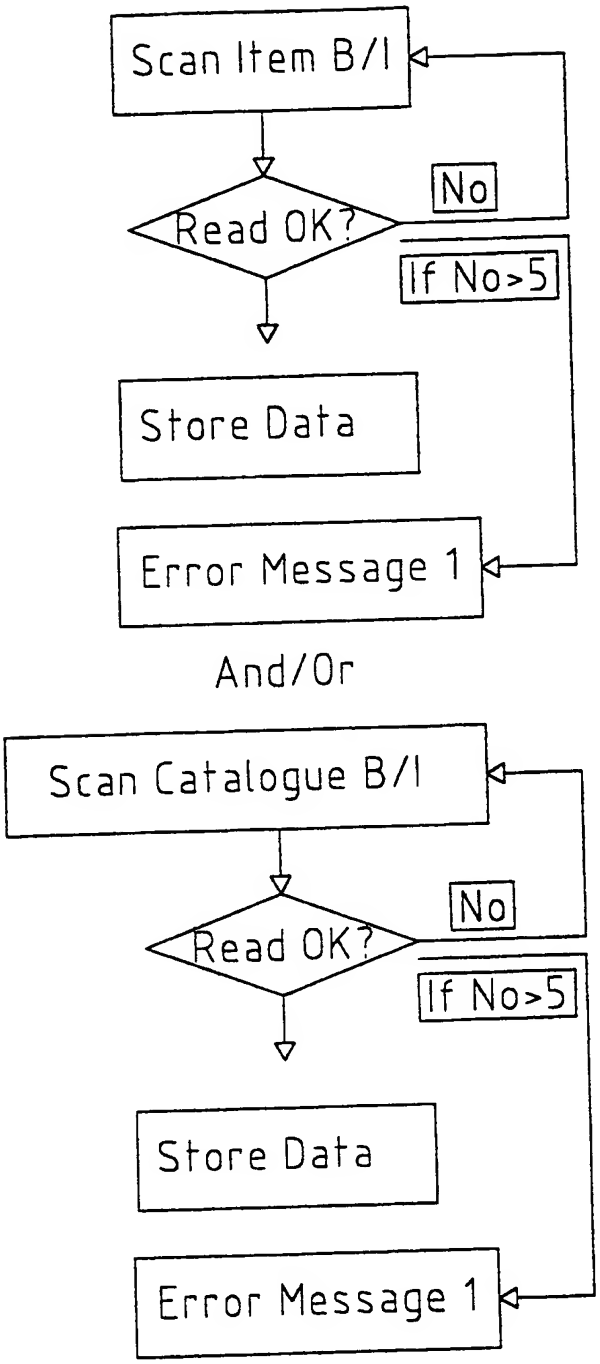


Fig. 7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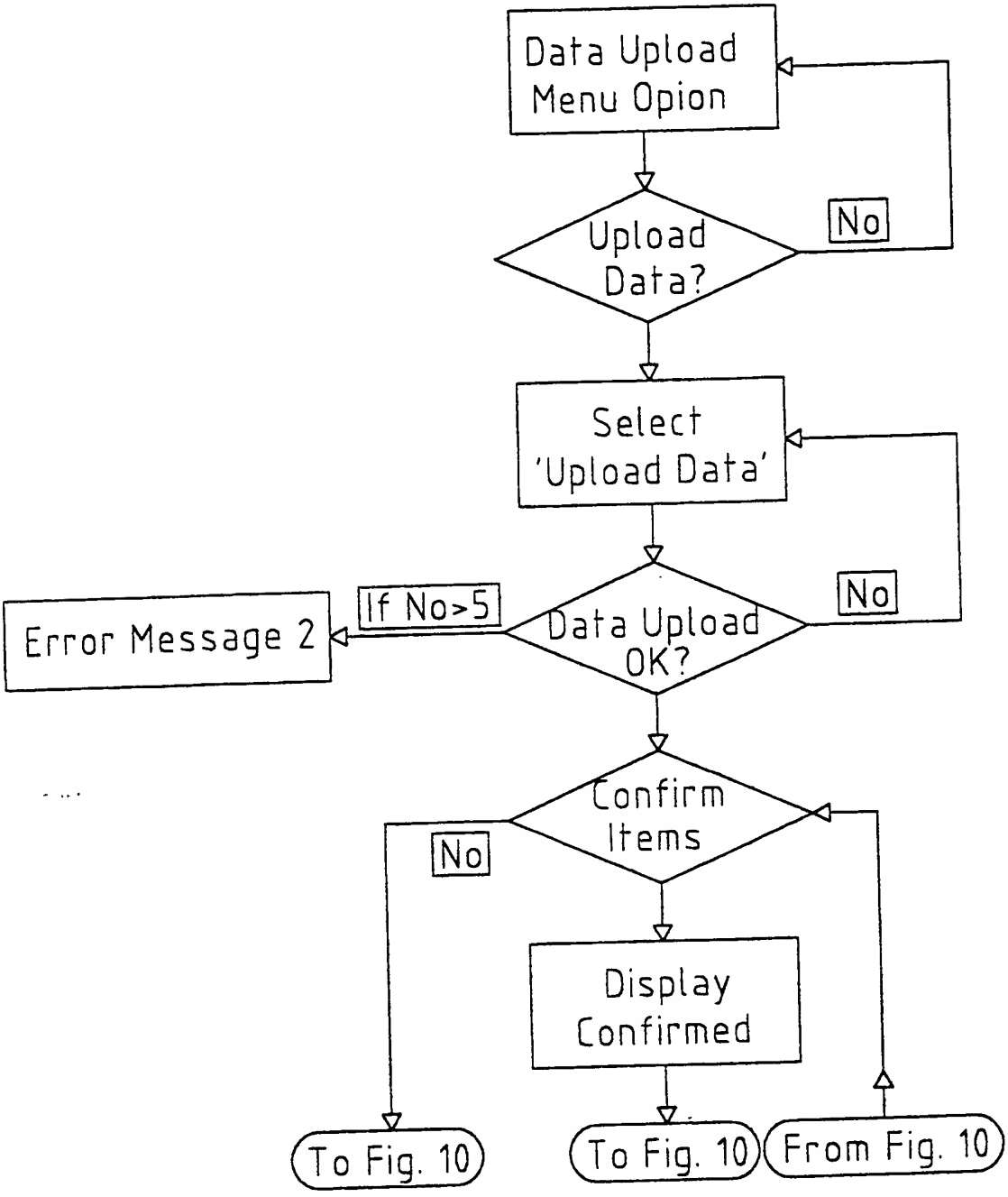
Read OK?
No
If No>5
Store Data
Error Message 1
And/Or
Scan Catalogue B/I
Read OK?
No
If No>5
Store Data
Error Message 1

Fig. 8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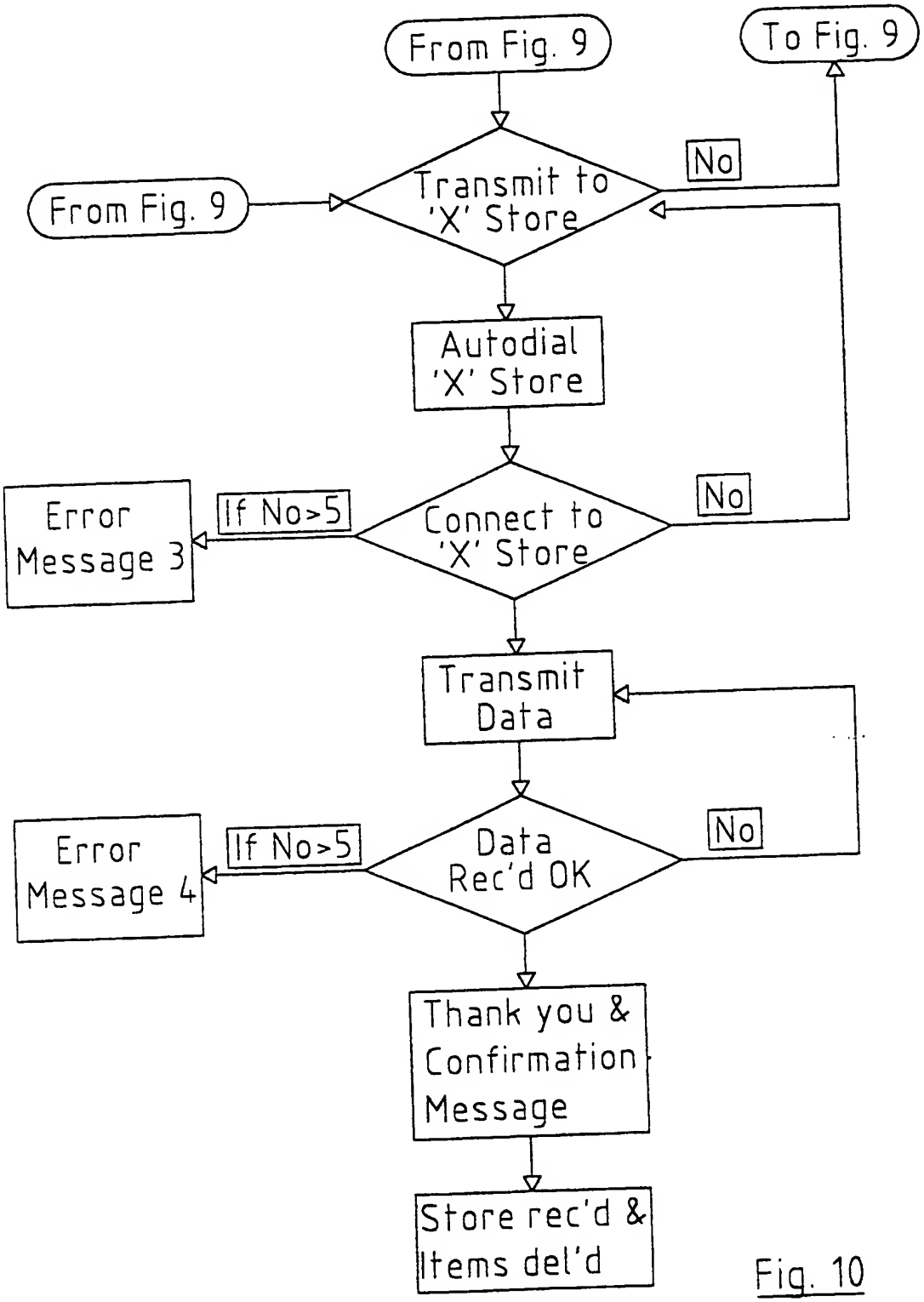
Data Upload OK?
No
Confirm Items
No
Display Confirmed
To Fig. 10
To Fig. 10
From Fig. 10

Fig. 9


From Fig. 9
To Fig. 9
From Fig. 9
Transmit to 'X' Store
No
Autodial 'X' Store
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If No>5
Connect to 'X' Store
No
Transmit Data
Error Message 4
If No>5
Data Rec'd OK
No
Thank you & Confirmation Message
Store rec'd & Items del'd

Fig. 10

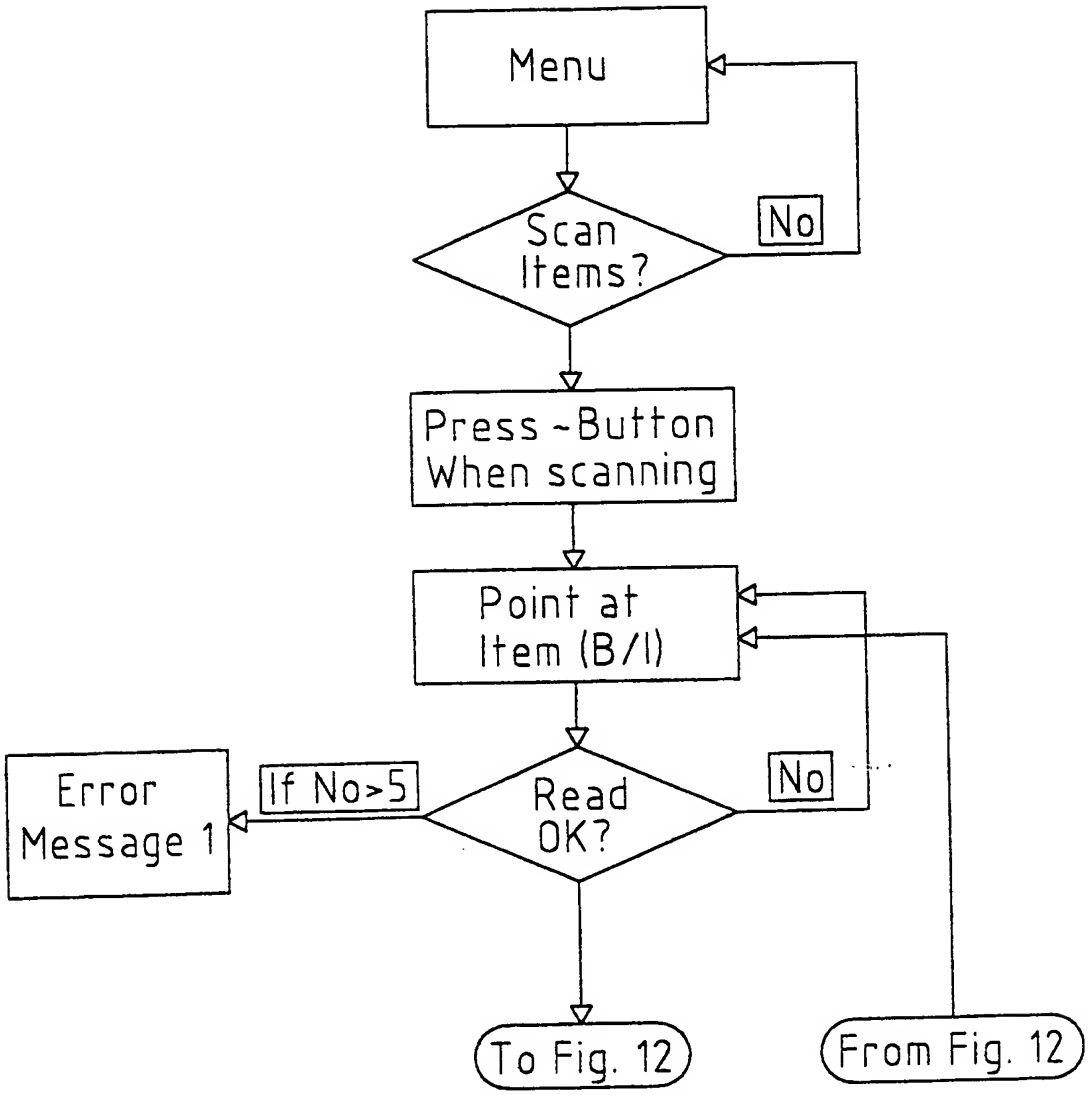
Menu
Scan Items?
No
Press ~Button When scanning
Point at Item (B/I)
Error Message 1
If No>5
Read OK?
No
To Fig. 12
From Fig. 12

Fig. 11

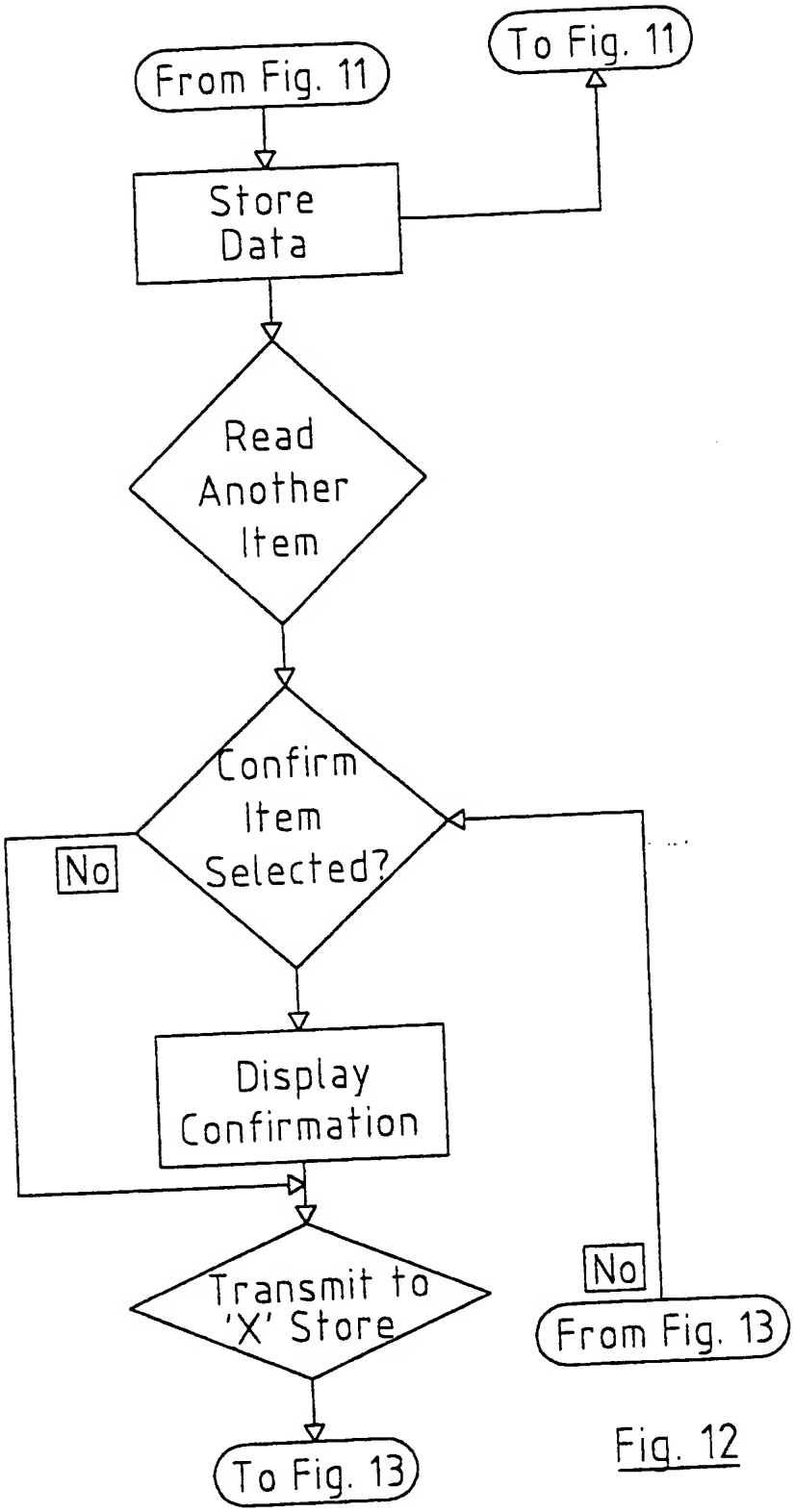
From Fig. 11
To Fig. 11
Store Data
Read Another Item
Confirm Item Selected?
No
Display Confirmation
Transmit to 'X' Store
No
From Fig. 13
To Fig. 13

Fig. 12

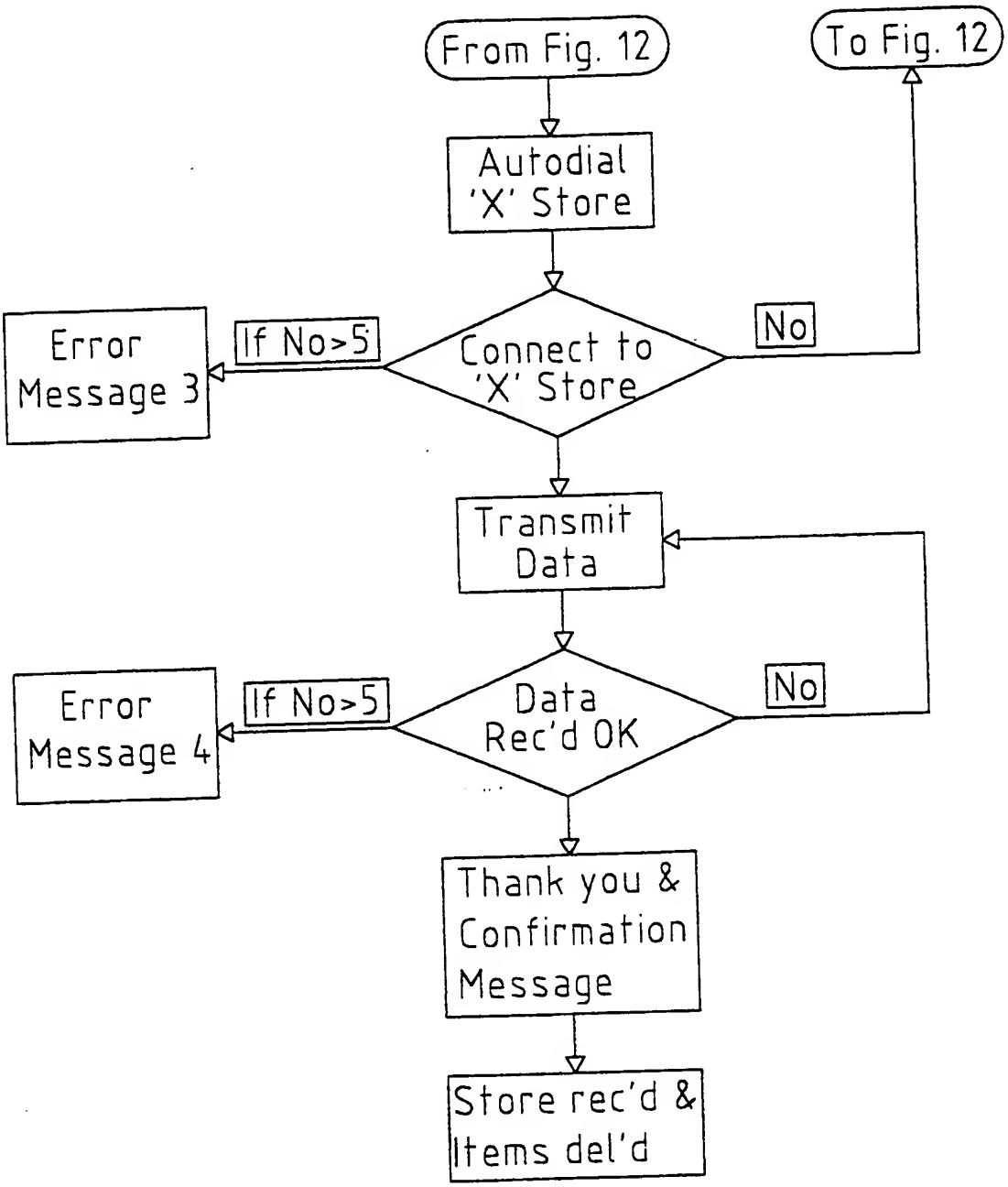
From Fig. 12
To Fig. 12
Autodial 'X' Store
Connect to 'X' Store
If No>5
Error Message 3
No
Transmit Data
Data Rec'd OK
If No>5
Error Message 4
No
Thank you & Confirmation Message
Store rec'd & Items del'd

Fig. 13

Interr ·nal Application No
PCT/IE 01/00015

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G07F7/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 16274 A (AVELLANET FRANCISCO J ;CATHGUIDE CORP (US)) 23 April 1998 (1998-04-23) page 14, line 254 -page 17, line 329 page 18, line 357 -page 19, line 375 page 20, line 398 -page 22, line 429 figures 8A,8B ---	1-6, 13-19, 25-29
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 May 2001	22/05/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Papastefanou, E

1

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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